Completed Pollution Prevention Project Case Study

United States Department of Energy
Office of Environmental Management
Fact Sheet

Material Substitution with Biodegradable Fluid

Los Alamos National Laboratory

Original Problem

The forklifts that operate in the radiological areas of TA-54 experience occasional hydraulic fluid leaks from the lifting mechanisms. In the past the small volumes of liquid and soil had to be expensively treated as mixed low level waste. A team at TA-54 wanted to find a less hazardous substitute for regular hydraulic fluid.

The Project Solution

A less toxic kind of hydraulic fluid was purchased to use with the forklifts in the radiological areas. BioSoy is made by West Central Soy, and it is composed mainly of soybean extracts, a renewable resource. Chris Duy decided to try BioSoy after reading about the success others were having with it. Spilled BioSoy does not qualify as RCRA hazardous waste, so the overall volume of mixed low level waste generated at TA-54 is reduced.

Value of Improvement

Although the exact amount is hard to quantify, Chris Duy estimated that as much as $15,000 a year might be saved from the volume reduction of mixed low level waste. In addition to being less toxic to humans and animals, BioSoy is a biodegradable and renewable resource.

Lifecycle Waste Reduction	
Lifecycle Waste Reduction	3-4 cu. ft./year
Commencement Date	1999
Project Useful Life (Years)	Indefinite

DOE Monetary Benefits	
Total Project Cost	NA
Lifecycle Savings	$15,000 / year
Return on Investment	NA

Benefits At-A-Glance

- BioSoy is a biodegradable renewable resource, composed primarily of soybean extracts.
- BioSoy is less hazardous and less toxic than regular hydraulic fluid.
- Reduces the potential for creating mixed low level waste.

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Summary Data	
Priority Area:	Waste Minimization Projects
Project Type:	Source Reduction
Total Project Cost:	NA
Lifecycle Savings:	$15,000 per year (estimated)
Implementing Group:	FWO-SWO
Benefiting Group:	FWO-SWO
Useful Life Years:	Indefinite
Return on Investment:	NA
Lifecycle Waste Reduction:	3-4 cubic feet of MLLW per year (estimated)
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Building Upon An Office of Science and Technology Demonstration Success